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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,375	06/13/2001	Bulent O. Yavuz	3638G	4986

7590

10/23/2002

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EXAMINER

ILDEBRANDO, CHRISTINA A

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/23/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/880,375

Applicant(s)

YAVUZ ET AL.

Examiner

Christina Ildebrando

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 39-58 and 71 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 39-58 and 71 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *Notice Re. Irradiated Mail*.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group I, claims 39-58, in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 39-58 and 71 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 38 and 71 recite the limitation "with the provisos that (i) iron-doped Beta zeolite is excluded." It is the position of the examiner that the specification as originally filed does not provide sufficient support for the negative limitation "other than iron-doped Beta zeolite." Any negative limitation or exclusionary proviso must have basis in the original disclosure. In this case, it is the position of the examiner that the specification does not provide adequate support for the use of any Beta zeolite with the express

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exclusion of iron-doped Beta zeolite. Therefore, it is the position of the examiner that such a recitation introduces new concepts. The express exclusion of certain elements implies the permissible inclusion of all other elements not so expressly excluded. This illustrates that such negative limitations do, in fact, introduce new concepts. Refer to MPEP 2173.05(i) and *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984).

If applicant believes that the specification does provide support for the recitation considered by the examiner to constitute new matter, applicant is requested to point to the page(s) and line number(s) where such support can be found.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 39-54, 56-58, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. (US 5,296,198) in view of Hertl et al. (US 5,284,638) and Wan et al. (US 4,714,694).

Abe et al. (US 5,296,198) teaches a process for the purification of exhaust gas emanating from an internal combustion engine that contains nitrogen oxides and hydrocarbons. It is taught that the catalytic system comprises a hydrocarbon adsorbent and additional catalytic material to reduce the nitrogen oxides present in the exhaust gas stream (column 2, line 65 – column 3, line 7). It is taught that the adsorbent used is

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a high silica zeolite and that it is exchanged with a noble metal such as Pt or Pd. It is taught that the additional catalytic material is a heat resistant oxide containing at least one noble metal (column 3, lines 36-42). The reference further teaches that the zeolite is used to adsorb hydrocarbons from the cool exhaust gas upon start up of the engine and that as the temperature rises, said hydrocarbons are released from the zeolite and converted by the catalyst material (column 4, lines 24-40). The zeolites mentioned by the reference include ZSM-5 and Y (column 5, lines 17-31). It is also taught that the zeolite to be used should be the hydrogen type in view of the heat resistance such type gives (column 5, lines 45-48).

The second component of the catalyst system is a heat resistant oxide such as alumina and it is taught that additional rare earth oxide such as cerium should be added in order to achieve a higher three way catalytic activity and heat resistance (column 6, lines 39-48).

It is further taught that the amount of zeolite to oxide material is between 10:90 to 85:15 and the total noble metals loaded are present in an amount between 10-35 g/ft<sup>3</sup> (column 6, lines 49-57). These values overlap or encompass the amounts of materials instantly claimed. It is taught that the materials are loaded on to a honeycomb monolith structure (column 9, lines 1-23). Lastly, attention is directed to Example 3 which uses a zeolite in conjunction with cerium oxide and alumina oxide having a surface area of 200 m<sup>2</sup>/g.

The difference between the reference to Abe et al. and the claims are that the reference does not teach the instantly claimed surface area of the bulk ceria present or the use of beta zeolite.

The reference to Hertl et al. (US 5,284,638) also teaches a catalyst system that comprises both a zeolite adsorbent used in conjunction with a heat resistant metal oxide for use in exhaust gas treatment processes. It is taught that the catalyst/adsorbent combination is effective for use in diesel engines (column 3, line 27). It is also taught that the adsorbent used can be zeolite Beta or ZSM-5 or Y zeolite (see column 4, lines 41-44 and the Table at column 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the invention of Abe et al. to include the use of zeolite Beta, in light of the teachings of Hertl et al. One of ordinary skill would have been motivated to use the zeolite beta of Hertl et al. in the composition taught by Abe et al. because zeolite Beta is an art recognized functionally equivalent adsorbent to the zeolites of Abe et al. Because both catalyst compositions can be used in analogous processes, i.e. exhaust gas purification processes, one would have a reasonable expectation of success from the combination.

With respect to the surface area of the ceria, Wan et al. (US 4,714,694) teaches the manufacture of a diesel exhaust gas catalyst. It is taught that a beneficial catalyst carrier can be produced by using alumina having a surface area meeting the instant claims in combination with bulk ceria having the required surface area. See column 10, lines 1-35 and the Examples of '694. It is taught that a platinum group metal is

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supported by the composition. Finally, it is taught that the catalyst composition is effective for the oxidation and reduction of components found in the exhaust gas emanating from the diesel exhaust gas engine.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the invention of Abe et al. to include the use of a cerium oxide component having the claimed surface area in light of the teachings of Wan et al. One of ordinary skill in the art at the time the invention was made would have had the motivation to use the specific alumina ceria catalyst composition of Wan et al. in conjunction with the zeolites in the process taught by Abe et al. because of the functional equivalence of the ceria-alumina-noble metal catalyst of both Wan et al. and Abe et al. Because both catalyst compositions can be used in the purification of exhaust gas, one would have a reasonable expectation of success from the combination.

With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because

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overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

Regarding claim 71, the “consisting essentially of” language in the claim is noted. The term limits the claim to the specified ingredients and those that do not affect the basic and novel characteristics of a composition. *Ex parte Davis et al.*, 80 USPQ 448. When applicant contends that modifying or additional components in the reference composition are excluded by the recitation “consisting essentially of,” applicant has the burden of showing the basic and novel characteristics of the claimed composition, i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition. *In re De Lajarte*, 143 USPQ 256.

6. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. '198 in view of Hertl et al. and Wan et al. as applied to claims 39-54, 56-58, and 71 above, and further in view of Abe et al. (US 5,164,350).

The references teach the features as previously described which can be found at the aforementioned locations.

The difference between the modified disclosure of Abe et al. '198 and the claims is that the modified disclosure of Abe et al. '198 further does not teach the instantly claimed layer structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the instantly claimed layer structure in the catalyst of Abe et al. '198 because of the teachings by Abe et al. '350 that such a layer arrangement is conventional in the art of exhaust gas catalysis. Motivation to use the layer structure



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further comes from the fact that the catalysts of each reference are functionally equivalent and analogous, i.e. both are directed to exhaust gas purification catalysts containing zeolite loaded with noble metal used in conjunction with a heat resistant oxide material also loaded with noble metal.

### ***Response to Arguments***

7. Applicant's arguments filed 7/9/02 have been fully considered but they are not persuasive.

With regards to the rejection under 35 USC 112, first paragraph, applicant argues that the limitation "with the proviso that iron-doped Beta zeolite is excluded" finds sufficient support in the specification and is therefore not new matter. This argument has been considered but is not persuasive. In the specification as originally filed, applicant makes no such provision that iron-doped Beta zeolite may be excluded. The examples detail the use of such a zeolite. Therefore, it appears that at the time the invention was made applicant did not have possession of the concept of a catalyst composition which specifically excludes iron-doped Beta zeolite. Therefore, the rejection under 112, first paragraph, is maintained.

Applicant argues that Abe '198 does not concern treatment of a diesel exhaust but rather a catalytic heater for residential or industrial use. Applicant further argues that Wan '694 concerns the catalytic treatment of the exhaust of a gasoline-fueled engine. Finally, applicant argues that the requirements of catalysts for treating the exhaust from gasoline-fueled and diesel-fueled engines are quite different.

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These arguments have been considered but are not persuasive. First, with regards to the reference to Abe '198, the examiner disagrees with applicant's characterization of the reference. Abe '198 clearly teaches a catalytic converter which can be employed in the purification of automobile exhaust gas. Refer to column 1, lines 15-25. Therefore, applicant's assertion that Abe '198 is limited to a catalytic heater for residential or industrial use does not appear to be commensurate in scope with the teachings of the reference.

Next, with regards to the differences in requirements of catalysts for treating gasoline and diesel fueled engines, it appears that applicant is relying upon the intended use of the composition to distinguish the instant claims from the teachings of the prior art. With regards to the preamble "A catalyst composition for treating a diesel engine exhaust stream," a preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. In composition claims, the recited intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. In this case, it is not considered that the preamble positively limits the structure as claimed. The prior art references clearly provide motivation to one of ordinary skill to combine the teachings to arrive at the structure instantly claimed.

Applicant argues that the examiner has selected features from one reference dealing with an electrified catalytic heater (Abe '198) and another reference concerned

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with a catalyst for the treatment of the exhaust of a gasoline-fueled engine (Wan '694). Applicant argues that the combination of references is thus improper and that the rejection is based upon hindsight reasoning. These arguments have been considered but are not persuasive. Abe '198 is not limited to a catalytic heater – as discussed above, the reference clearly teaches a catalytic converter which can be employed in the purification of exhaust gases. With reference to column 6, lines 35-50 of '198 and column 1, lines 8-18 and column 10 of '494, it is clear that the catalyst compositions taught by the references function in an analogous manner to purify automobile engine exhaust gas and therefore the cerium oxide taught by the Abe '198 and Wan references can be said to be functionally equivalent, providing one of ordinary skill motivation to combine the teachings of the reference.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, the motivation to combine the references comes solely from the teachings of the prior art.

With regards to the overlapping ranges disclosed by the reference, applicant argues that the present situation differs from the case law cited by the examiner in that

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the materials taught by the prior art and the materials instantly claimed are not similar. Applicant again argues that Abe '198 is concerned only with a catalytic heater. Again, the examiner disagrees with applicant's characterization of the teachings of the reference. Applicant's arguments are not commensurate in scope with the disclosure of the reference. Applicant further argues that applicant's claims are directed towards the treatment of the exhaust of a diesel gas to reduce the noxious pollutants contained therein. However, this is not the case. The instant claims are directed towards a product and not the process of exhaust gas treatment. In this case, it is the position of the examiner that it would have been well within the level of one of ordinary skill to optimize the relative amounts of materials present, in light of the fact that the reference teaches ranges which overlap and encompass the ranges instantly claimed

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (703) 305-0469. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

CAI  
October 17, 2002

  
TOM DUNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

The following papers have not been made part of the permanent records of the United States Patent and Trademark Office (Office) for this application (37 CFR 1.52(a)) because of damage from the United States Postal Service irradiation process:

Mailroom Stamp Date: 7/9/02

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The above-identified papers, however, were not so damaged as to preclude the USPTO from making a legible copy of such papers. Therefore, the Office has made a copy of these papers, substituted them for the originals in the file, and stamped that copy:

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If applicant wants to review the accuracy of the Office's copy of such papers, applicant may either inspect the application (37 CFR 1.14(d)) or may request a copy of the Office's records of such papers (*i.e.*, a copy of the copy made by the Office) from the Office of Public Records for the fee specified in 37 CFR 1.19(b)(4). Please do **not** call the Technology Center's Customer Service Center to inquiry about the completeness or accuracy of Office's copy of the above-identified papers, as the Technology Center's Customer Service Center will **not** be able to provide this service.

If applicant does not consider the Office's copy of such papers to be accurate, applicant must provide a copy of the above-identified papers (except for any U.S. or foreign patent documents submitted with the above-identified papers) with a statement that such copy is a complete and accurate copy of the originally submitted documents. If applicant provides such a copy of the above-identified papers and statement within **THREE MONTHS** of the mail date of this Office action, the Office will add the original mailroom date and use the copy provided by applicant as the permanent Office record of the above-identified papers in place of the copy made by the Office. Otherwise, the Office's copy will be used as the permanent Office record of the above-identified papers (*i.e.*, the Office will use the copy of the above-identified papers made by the Office for examination and all other purposes). This three-month period is not extendable.

Part of Paper No.: 7